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22 October 1969

MEMORANDUM FOR: Executive Director, NPIC

THROUGH : Chief, Technical Services & Support Group
Chief, Research & Engineering Division
Acting Chief, Advanced Technology Branch, RED

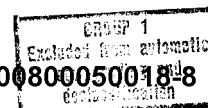
SUBJECT : Status Report - PI Process Research Program

1. Efforts to develop a test predictive of Center PI efficiency have been devoted thus far to measuring the predictive validity of the Army PI Test Battery. The rationale behind the current testing program is to determine how well an already established test - developed for selection of Army officers for tactical and strategic PI training - can predict PI performance in a strategic intelligence setting. Based upon the results of this phase of the research, a decision can then be made on how extensive the Center's reliance upon the Army test should be for purpose of applicant selection, assessing the requirements for and success of training, career development, and etc.

2. A number of independent analyses have been made to date. The scores of the Army's standardization sample of 120 officers who lacked PI experience (hereafter referred to as Group A) were compared with those of 96 Agency employees and applicants (Group B). The average score of the Army personnel (Group A) was 45.99 (with a standard deviation, S.D. = 16.82) while the average score of Agency personnel (Group B) was 51.52 (with a S.D. of 15.22). Statistical analysis revealed that the mean difference of 5.53 was highly significant. In short, the Agency Group (B) scored significantly higher than did Group A. However, Center records did not reveal how many of the Agency personnel had previous PI experience, nor how extensive that experience might have been. The difference in scores might well be reflecting an experiential factor.

3. Since time did not permit a review of each person's personnel folder, the test was administered to a second group of Agency personnel (Group C) - those forty-two PIs who had not previously taken the test,

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but who did participate in the updated versions of the [] "Hunting" and "Reasoning" tests. Clearly, these individuals would be classified as highly experienced photo interpreters. Results for Group C were: Mean Score = 61.91, S.D. = 11.96. Subsequent analyses revealed that these PIs scored significantly higher than did those in Group B, the Agency Group of 96 individuals, who in turn scored higher than Group A. There is little question, then, that the test is sensitive to PI experience.

4. A further indication that experience influences test scores is concerned with a percentage of individuals who have exceeded the Army's minimum qualifying score of 35*. The Army reported that 29 per cent of their officers in Group A failed to make the cut-off score. Of the 96 individuals in Group B, 17 per cent scored below 35 while only 3 per cent (1 employee) of the experienced PIs in Group C failed to exceed the cut-off score. In other words, not only did the average score of Group C exceed the average of the other comparison groups, but the entire distribution of scores for the Group shifted to the high end of the score range, while the variability within the distribution decreased. A similar, although less marked trend, occurred for Group B in comparison with Group A.

5. Since the question of experience on test scores seems to have been answered to some satisfaction, work has since been devoted to comparing test scores to performance measures. One analysis correlated test scores with scores Agency personnel attained at Offutt PI School. Forty-two Center employees, 6 of whom were tested in Group C, with the remainder drawn from Group B, had attended the Offutt School. Although the records to which I had access did not include test and school dates, I would imagine that most individuals, with the exception of the 6 PIs from Group C, were tested prior to attending Offutt. The analysis revealed a remarkably high correlation between test score and final school grade ($r = .80$). As a matter of fact, the test appears to be a significantly better predictor of success at Offutt for Agency personnel than it is for the Army at Army PI School, where the correlation was .63 for the Army's standardization sample.

6. Results of the Hunting and Reasoning Tests will soon be reported by [] A preliminary review of their analyses reveals a moderate, positive correlation between attendance at Offutt and "Reasoning" success. To what ever extent "Reasoning" ability is correlated to PI on-the-job-performance, the PI test may be a useful predictor not only of school success but of PI ability in general.

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25X1 7. A final test under this phase of the PI Process Research Program is being conducted at [] I have asked that as part of the current contract, scores on the Army test be broken down by the number of correct and the number of incorrect responses on each of the two parts of the test. These scores, coupled with the weighted average score, are to be correlated with the various combinations of the "Hunting" and "Reasoning" tests, job experience, types of experiences, etc. [] representatives intend to review this analysis when they brief Center personnel on 30 October.

25X1 8. When all is said and done, however, success as a Center PI is far more complicated than is indicated by a few somewhat artificial performance measures. I recommend that additional analyses be conducted to correlate test scores with IEG's "Performance Evaluation Guide" results, assuming that such evaluations are indicative of job success. Moreover, motivation and job satisfaction loom as equally important indices of success, and these have yet to be measured. I therefore recommend that [] Psychological Services Staff/Office of Medical Services, be contacted to discuss the possibilities of administering the "Job-Related Attitudes" surveys his office is administering to large groups of Agency employees, and which the Civil Service Commission is administering throughout the Civil Service.

[]
Chief, Human Factors Section, ATB

*The Army's minimum qualifying for entrance to the Army PI Training course is 35, a score established as the cut off because it eliminates 52 per cent of the students ranking in the lower third of the class in Army PI School, 28 per cent of the students in the middle third, and only 3 per cent of the students in the top third of the class.

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ABSTRACT

Results of a series of analyses comparing Center employee and applicant scores to Army officer PI school candidates revealed:

A. Agency personnel score significantly higher on the Army test than do Army officers.

B. PI experience has a marked effect on PI test scores.

C. The Army test appears to serve as a better predictor of success of Agency employees at Offutt than it does as a predictor of success of Army officers at Army PI School.

D. Formal training at Offutt appears to be correlated with the updated version of the "Reasoning" test, which in turn was designed to simulate, in part, on-the-job PI performance. Hence, the Army test may be a valuable indicator of job success.

E. Efforts are in progress to relate the Army test scores to a large variety of performance measurements and biographical information.

F. Recommendations are made to incorporate motivation tests and job-aptitude surveys as part of the continuing effort to predict long-term PI success.

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